


## Brief Biodata

**Name: Dr. Mahammad Arif Sanjid**

<b>Designation:</b>	<b>Sr. TO (I)</b>	
<b>DP No. and Name:</b>	<b>DP#1.02, Length Dimension and Nanometrology</b>	
<b>DU No. and Name:</b>	<b>DU#1, Physico-Mechanical Standard</b>	
<b>Email:</b>	<b>sanjid@nplindia.org</b>	
<b>Date of Joining CSIR-NPL:</b>	<b>11.06.2001</b>	
<b>Phone (office)</b>	<b>4560 8676</b>	
<b>Mobile (optional)</b>	<b>-</b>	

### Research Area/ Interest

#### Dimension Metrology:

Design and development of dimension metrology solution using multiple sensors including autocollimators, laser interferometers and electronics, and measuring machine.

Instrumentation:

1. Calibrating the displacement of Rockwell testers using double pass Laser interferometer is devised and disseminated to India Industry – A consultancy Project
2. Calibrating the collimator of Testing Machine Theodolite using Autocollimator is devised and disseminated to India Industry – A consultancy Project.
3. Characterizing the high-pressure transducer using LVDT sensors are developed.

Development of Computer software for metrology applications

Research and Consultancy projects related to dimensional measurements

### Educational Qualifications

<b>Degree</b>	<b>Subject</b>	<b>University/ Institute</b>	<b>Year</b>
PhD	Mechanical Engineering	Indian Institute of Technology, Dhanbad, India	2016-2021
Master of Science (MSc)	Bioinformatics	Jamia Millia Islamia, New Delhi, India	2012
Graduation AMIETE	Electronics and Telecommunications Engineers	Institute of Electronics and Telecommunications Engineers, New Delhi, India Graduation	2007
Diploma in Electronics and Communications Engineering	Electronics and communications Engineers	Andhra Polytechnic, Kakinada, Andhra Pradesh, India	1995

## Academic / Research Experience

Grade / Post	Institute	Duration		Research Field
		From	To	
Senior Technical Officer	CSIR- National Physical Laboratory,	2010	2022	Dimensional Metrology
Technical Officer	CSIR- National Physical Laboratory,	2001	2010	Dimensional Metrology

## No. of Publications: 23

No. of Publications in SCI Journals	No. of Publications in non-SCI Journals	No. of Publications in Conference Proceedings	Books	Total
21	2	7	2 Chapters	30

## Selected Publications

1.	Simulation of Kinematic Supports of Surfaces Plates for Optimum Flatness Tolerance,	Mapan - Journal of Metrology Society of India	2021
2.	An accurate inner diameter measurement	<b>The Review of scientific instruments</b>	2020
3.	A Review of Diameter Measurement and a Proposal for the Improvement Thereof,	MAPAN - Journal of Metrology Society of India	2019
4.	Reviving the inter-laboratory comparison measurement results,	<b>Transactions of the Institute of Measurement and Control</b>	2019
5.	A novel method of diameter measurement of piston used in pressure standards using scanning principle and fusion technique,	<b>Measurement Science and Technology</b>	2018
6.	Measurement of Refractive Index of Liquids Using Length Standards Traceable to SI Unit	MAPAN-Journal of Metrology Society of India	2016
7.	Validation of Software Used for Calibration of Angle Block at CSIR-NPL, India,	MAPAN-Journal of Metrology Society of India	2015
8.	Improved direct comparison calibration of small-angle blocks,	<b>Measurement</b>	2013
9.	Digital Processing of Speckle Interferometry to Measure Film Thickness and Surface Deformations,	Mapan - Journal of Metrology Society of India	2006
10.	Ramification of uncertainty due to limited resolution of universal measuring machine	Indian Journal of Pure and Applied Physics	2005
11.	A novel method to measure the decay frequency of a dynamically tuned gyroscope flexure,	<b>Measurement Science and Technology 14(12):2081</b>	2003

## Patents (IPR)

1. **SW # 6970/2013**, "Flick standard calibration using laser interferometer applying genetic algorithm", a contribution to Intellectual Property Rights portfolio of CSIR-NPL, India – software written in Perl.
2. **007 CR 2005**, "Gauge Block Interferometry Software Tool for Research" contributed India Intellectual Property Rights to the portfolio of CSIR-NPL– software written in Visual Basic.
3. **SW # 1440 /2009**, "Calibration of Angle Gauges", a contribution to Intellectual Property Rights portfolio of CSIR-NPL, India – software written in Visual Basic.

## Current Activities

1. Scientific Instrument Development with Optics and Lasers – Two diameter measurement configurations using **multiple laser interferometers**
2. Mathematical Modelling of Physical Systems–**Simulating the effect** of different **kinematic Supports** used for the installation of Surfaces Plates.
3. **Modelling of Laser Scanning System** is modelled, and It's Associated Uncertainty of Measurement.

## Honour(s)/Award(s)/ Fellowship(s)

1. **Awards:** Three Technology Day awards presented by CSIR-National Physical Laboratory, New Delhi - **2005, 2010, 2013**, and an Award for Excellence for 2021.
2. **Recognition**
  - a. Trained Dimensional metrology personnel of National Measurement Institute at BHUTAN for the PTB-SAARC Attachment program–
  - b. Reviewer: Measurement (Elsevier), Mapan (Springer)

## Contributions to AcSIR : Other Teaching experience for CSIR-NPL, India HRD programs

The following courses are taught at NPL, India and SAARC -PTB, Germany programs.

1. Interferometer Gauge Block Calibration
2. Angle Measurement– artefacts, instruments and calibrations
3. Form Measurement – straightness, flatness and roundness
4. Stage micrometer, dial tester, glass graticules and handheld instruments
5. Applications of displacement measuring laser interferometer
6. Mechanical Surface roughness measuring techniques
7. Uncertainty of measurement and Monte Carlo Method

## **Membership of Professional Societies/ Institutions**

1. Life Member of Metrology Society of India, New Delhi.
2. Associate Member of Institute of Electronic and telecommunication Engineers, New Delhi.
3. Qualified Assessor of ISO/IEC 17025:2017 of National Accreditation Board of Laboratories, Quality Control of India, Ministry of Science and Technology.

## **Any other Information**

**Citations** – Approximately 50

### **Mentored**

1. Guidance of Post graduated level (Master of Technology) students – 3 No's
2. Guidance of Under graduated level students – 3 No's
3. Dimension metrology training to NMI under SAARC -PTB, Germany.

### **Training acquired**

1. Scientific Project Management and Modern Techniques of Execution,
2. Interpersonal and Legal Communication Methodologies,
3. Intellectual property right and Patenting Aspects
4. Qualified NABL assessor of ISO 17025: 2017.

### **Projects**

1. Establishing traceability to geodesic instruments calibration systems
2. Development of defect verification for test rails
3. Disseminating traceability to depth measurement of Hardness tester
4. Proficiency testing for accredited laboratories